

amend the drawings in the above identified application as follows:

Figures 8 and 8A, kindly add reference numeral 382 and associated leadline.

The requested amendments are indicated in red on the attached marked-up copy of the drawings. Two marked up copies are enclosed to facilitate this request.

Upon approval by the Examiner et al. of the above requested amendments, Applicant's agent will have the corrections entered to the drawings of the application by use of an approved method.

Remarks

The Office Action of April 9, 2001, Paper No. 3, was carefully reviewed and to highlight the distinctions of the above referenced invention over the prior art of record as interpreted by the Examiner, Claims 12 and 26 were cancelled while Claims 1, 6, 14, 15, 20 and 28 were amended to comply with the Examiner's suggestions, to more clearly define the subject matter of the invention and to place all of the claims remaining in the application in condition for allowance. No new matter was presented and the claim amendments are deemed unobjectionable. Entry thereof is respectfully requested. It is also respectfully requested that the Examiner reconsider the present application and claims as currently pending in view of the following remarks.

In the Office Action, the Examiner noted that one of the inventors had not signed a Declaration or a Power of Attorney. Enclosed are appropriately executed Declaration and Power of Attorney documents by Lee A. Chase. Accordingly, it is respectfully suggested that this noted informality is now moot.

In the Office Action the Examiner objected to the drawings under 37 CFR §1.83(a) for failing to show some of the features of Claims 1, 7, 12, 21 and 26. The

“margin” of Claim 1 and the adhesive being in the form of a mechanism interlocking means according to Claims 7 and 21 cannot be shown in the drawings. As described in the specification at page 17, lines 13-16, page 19, lines 8-24, and page 20, lines 1-16 the margin of the preferred embodiment can be specified as 0 mm per side with a unilateral tolerance of -1.6 mm. It is not practical to attempt to show this in the drawings since the drawings are not dimensional drawings but exhibit features of the invention. The specification clearly discloses the margin and a person skilled in the art will clearly understand this feature from the description in the specification. Further, Figures 3-7 illustrate the adhesive which is defined as a force that holds together molecules of unlike substances whose surfaces are in contact. Again, it would be impractical to illustrate this feature in the drawings since a person skilled in the art would clearly understand the mechanical interlocking means feature of the adhesive. Accordingly, withdrawal of this objection to the drawings is respectfully requested.

The Examiner further objected to the drawings under 37 CFR §1.84 (p)(4) as well as 37 CFR §1.84 (p)(5). In response, reference character 382 has been added to the specification at page 23 and appropriate corrections are made in the specification and drawings to redesignate each of the wheel rims and rim flanges with different reference characters to clearly and succinctly disclose the invention. Since Claims 12 and 26 are cancelled herein, the objection to the drawings is now moot. Accordingly, withdrawal of the objection to the drawings under the 37 CFR §1.84(p)(4) and 37 CFR §1.84(p)(5) is respectfully requested.

The Examiner rejected Claims 6, 7, 14, 20, 21 and 28 under 35 U.S.C. §112, second paragraph, for reasons stated at page 4 of the Office Action.

In response to the rejection of Claims 6 and 20 an adhesive tape is well known to a person skilled in the wheel/cladding art. To correct this the undersigned has amended these claims to incorporate the Examiner's suggested language.

With respect to Claims 7 and 21, it is noted that an adhesive is defined as a force that holds together molecules of unlike substances whose surfaces are ^{not} in contact (adhesion). Therefore, the language "a mechanical interlocking means" is considered a description of such force. Accordingly, such terminology will be understood by a person skilled in the art.

The "shape" to accommodate a balance weight on a wheel is defined and published in SAEJ1982 Dec 91 and SAEJ1986 Feb 93 which is incorporated in the specification by reference at page 17. Therefore, a person skilled in the art will understand this terminology.

Based on the above arguments, it is clear that a person skilled in the art will clearly understand the various terminology stated by the Examiner to be objectionable. It is, therefore, respectfully requested that the rejections of Claims 6, 7, 14, 20, 21 and 28 be withdrawn in that all of the claims do indeed particularly point out and distinctly claim the subject matter which the Applicants regard as the invention.

In the Office Action, the Examiner rejected Claims 1, 7, 10, 11, 12, 15, 21, 25 and 26 under 35 U.S.C. §102(b) as being anticipated by Todd, U.S. Patent 5,143,426. The undersigned attorney respectfully traverses the Examiner's rejection of independent

Claims 1 and 15 and dependent Claims 7, 10, 11, 12, 21, 25 and 26 in view of the following argument.

In the Office Action the Examiner rejected Claims 1, 4, 5, 8, 10, 11, 12, 15, 18, 19, 22, 24, 25 and 26 as anticipated by Eikhoff, U.S. Patent 5,829,843. The undersigned attorney also respectfully traverses the Examiner's rejection of independent Claims 1 and 15 and dependent Claims 4-5, 8, 10-12, 18-19, 22 and 24-26 in view of the following argument.

In the Office Action the Examiner rejected Claims 1, 10, 11, 12, 15, 24, 25, and 26 as being anticipated by Buerger, U.S. Patent 5,031,965. Again, the undersigned attorney also respectfully traverses the Examiner's rejection of independent Claims 1 and 15 and dependent Claims 10-12 and 24-26 in view of the argument that follows.

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. §102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents functioning in substantially the same way to produce substantially the same results. As noted by the Court of Appeals of the Federal Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. §102, the Court stated:

“Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.”

Applicants' independent Claim 1 requires:

"A wheel and overlay assembly, comprising:

a wheel having an outboard surface thereon, said wheel further having a disk portion and a rim portion circumscribing said disk portion, said rim portion having a rim flange circumscribing said rim portion, said rim flange terminating in a flange lip defining a radially outermost edge thereon; and

an overlay having an outboard surface thereon, said overlay being attached to said outboard surface of said wheel, said overlay further having a web portion, and a peripheral flange circumscribing said web portion and terminating in a peripheral lip, **said peripheral lip having a radially outermost edge aligned within a predetermined margin with respect to said radially outermost edge of said flange lip of said wheel so that said peripheral lip of said overlay substantially covers said flange lip of said wheel but does not extend beyond said outermost edge of said flange lip of said wheel, so as to give a visible impression that said outboard surface of said overlay is actually said outboard surface of said wheel and not a separately attached component of said wheel and overlay assembly."**

Applicant's independent Claim 15 requires:

"A wheel and overlay assembly, comprising:

a wheel having an outboard surface thereon, said wheel further having a disk portion and a rim portion circumscribing said disk portion, said rim portion having a rim flange circumscribing said rim portion, said rim flange terminating in a flange lip defining a radially outermost edge thereon, said radially outermost edge defining an outer diameter; and
an overlay having an outboard surface thereon, said overlay being attached to said outboard surface of said wheel, said overlay further having a web portion and a peripheral flange circumscribing said web portion and terminating in a peripheral lip, said peripheral lip having a radially outermost edge defining a diameter, **said diameter of said overlay being substantially equal to but not greater than said outer diameter of said wheel, whereby said peripheral lip of said overlay substantially covers said flange lip of said wheel so as to give a visible impression that said outboard surface of said overlay is actually said outboard surface of said wheel and not a separately attached component of said wheel and overlay assembly."**

Each of the prior art references cited by the Examiner namely Todd, Eikhoff and Buerger fail to disclose a structure that is claimed in the present invention. No one reference discloses a wheel and overlay assembly wherein "...said peripheral lip having a radially outermost edge aligned within a predetermined margin with respect to said radially outermost edge of said flange lip of said wheel so that said peripheral lip of said overlay substantially covers said flange lip of said wheel but does not extend beyond said outermost edge of said flange lip of said wheel so as to give a visible impression that said outboard surface of said overlay is actually said outboard surface of said wheel and not a separately attached component of said wheel and overlay assembly." as in Claim 1, or a wheel and overlay assembly wherein "...said diameter of said overlay being substantially equal to but not greater than said outer diameter of said wheel, whereby said peripheral lip of said overlay substantially covers said flange lip of said wheel so as to give a visible impression that said outboard surface of said overlay is actually said outboard surface of said wheel and not a separately attached component of said wheel and overlay assembly." as in Claim 15.

Therefore, in applying the test for anticipation as set forth in *Lindemann*, neither Todd, Eikhoff or Buerger anticipate either independent Claim 1 or 15. Accordingly, withdrawal of the rejection of independent Claims 1 and 15, as well as dependent Claims 4, 5, 7, 8, 10-12, 18, 19, 21, 22 and 24-26 which are but delineations of the invention set forth in the independent claims from which they depend, under 35 U.S.C. §102(b) is respectfully requested.

The Examiner rejected independent Claims 1 and 15 as well as dependent Claims 2, 3, 8, 9, 17, 22 and 23 under 35 U.S.C. §103(a) as being obvious over the teachings of Todd. Further, the Examiner rejected Claims 1-3, 6, 8-10, 13, 15, 16, 17, 20, 23 and 27 under 35 U.S.C. §103(a) as being obvious over the teachings of Eikhoff.

Applicants' agent respectfully traverses each of the 35 U.S.C. §103 rejections set forth herein in view of amended independent Claims 1 and 15 for the reason that Applicants' invention is not an obvious improvement over the prior art.

With respect to the rejections under 35 U.S.C. §103, it is noted in MPEP Section 706 that the standard of patentability to be followed in the examination of a patent application is that which was enunciated by the Supreme Court in *Graham v. John Deere*, 148 USPQ 459 (1966), where the Court stated:

“Under Section 103, the scope and the content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.”

Accordingly, to establish a prima facie case of obviousness, the Patent Office must; (1) set forth the differences in the claim over the applied references; (2) set forth the proposed modification of the references which would be necessary to arrive at the claimed subject matter; and (3) explain why the proposed modifications would be obvious. To satisfy step (3) above, the Patent Office must identify where the prior art provides a motivating suggestion, inference or implication to make the modifications proposed in step (2) above. *In re Jones*, 21 USPQ2d 1941 (Fed. Cir. 1992). Prior to discussing the unobviousness of the present invention over the prior art, the teachings of

the prior art references and the differences, novelty, and unobviousness of the present invention over the prior art references will be set forth.

From the following prior art teachings, it is clear that there are no suggestions, inferences, or implications whatsoever to obviate Applicants' invention.

Todd, U.S. Patent 5,143,426, is directed to the problem of reduction of vehicle weight by the use of a process of attachment of a plastic overlay coating to a polystyrene base that has been molded to the desired configuration of the component.

To overcome this problem Todd teaches an "in situ" molding process to make a wheel and overlay assembly having a polystyrene base that is molded into the general configuration of the wheel against the metal rim. Applied to the molded base by a low pressure injection molding process is a thermoplastic fascia that is allowed to flow around the base to form a mechanical lock, eliminating the need for adhesives. To secure the fascia to the underlying polystyrene base or wheel in the case of the vehicle wheel, the thermoplastic material flows around the edges of the vent openings engaging the underlying wheel rim to secure the overlay to the rim. The thermoplastic fascia 26 is molded over the foam core 24 such that a mechanical lock is formed, thereby eliminating the need for adhesives.

The fascia 26 and base 24 are molded such that openings 28 corresponding to the vent openings 20 of the rim 12 and bores 30 corresponding to the bolt holes 16 are formed to provide the required access. The mechanical lock of the fascia 26 around the base 24 and to the rim 12 is formed through the vent openings 20 by molding the thermoplastic around the edges of the openings 20. A flanged lip 32 is formed to secure

the fascia 26 to the steel wheel. For added securement, the lip 32 may also be formed around the bolt holes 16. As a result of this mechanical attachment, no adhesive is required. In a preferred embodiment, the peripheral edge 34 of the fascia 26 extends to the edge of the wheel. This same securement principal can be used in other components which have spaced openings such as dashboards or instrument panels. In components which do not include openings, the fascia material may be extended completely around the base material 24 to completely enclose the material.

Beyond this incidental suggestion, Todd is absolutely silent with respect to the relationship of the overlay coating with respect to the axial or radial edge of the wheel. When viewed in terms of the general teachings of the several embodiments of Todd, Todd is completely contrary to the structure of the Applicants' preferred embodiment and the features associated therewith because Todd discloses as well as suggests that "the fascia material may be extended completely around the base material 24 to completely enclose the material." Column 3, lines 39-41.

Clearly, the incidental reference with respect to the preferred embodiment of Figures 1 and 2 fails to address the relationship between the peripheral outermost edge of the overlay with respect to the outer edge of the wheel. Accordingly, the structural elements taught by Todd with respect to the preferred embodiment of Figures 1 and 2 where the fascia appears to extend to the axial edge of the wheel but beyond the radial edge of the wheel cannot possibly apply to the alternate embodiment of Figures 4a and 4b where the radial edge of the fascia appears to be in line with the radial edge of the wheel as the part is illustrated in the mold. In fact, they appear to be completely contrary to the

disclosure of Figures 1 and 2 since none of the advantageous features recited by Todd with respect to his preferred embodiment relate in anyway whatsoever to the incidental disclosure of the alternate embodiment of Figures 4a and 4b.

Eikhoff, U.S. Patent 5,829,423, is directed to the problems associated with prior art wheel cover retention systems using an expanding adhesive material where the adhesive material is insufficient to retain the wheel cover on the wheel.

To solve this problem, Eikhoff teaches a wheel cover retention system wherein the outboard tire bead seat retaining flange of the associated wheel includes a unique machined lock construction for securing a wheel to the cover. The outboard tire bead set retaining flange includes an outer surface having a circumferential radially inwardly facing groove portion therein. The wheel cover includes an outer annular lip, that includes a locking shoulder 64 to extend into the locking catch 62 of the locking arrangement 60. An extended flange portion 54 extends over the top of the rim flange to encase the rim flange and lies within a rim relief area 66 along the tire side of the rim flange.

Applicants' invention is directed to the lack of a cost effective method of achieving an individual aesthetic appearance of a vehicle wheel and associated cover without wrapping the edge of the cover around the flange lip of the rim flange of the wheel.

To overcome the problems associated with prior art wheel and cover assemblies, Applicants teach a device wherein the overlay is brought radially outward to cover the entire outboard face of the wheel, including the flange lip of the rim flange

without the costly technique of wrapping the overlay around the flange lip of the rim flange at an economical cost without jeopardizing the structural integrity of the wheel assembly.

The overlay as taught by Applicants' invention is permanently secured to a wheel, where the overlay is brought radially outward to cover the entire outboard face of the wheel, including the flange lip of the rim flange of the wheel without wrapping around the flange lip of the rim flange. The present invention includes a wheel having an outboard surface defined by a disk, and a rim circumscribed about the disk. The rim's radial outer periphery (or the disk's outer periphery in the case of a full face wheel) is defined by a rim flange having a flange lip as the axially outermost edge. The overlay has an outboard surface with a web portion, and an integral peripheral flange or rim flange portion circumscribed about the web portion. Further, the peripheral flange or rim flange portion of the overlay also terminates in a flange lip as the radially outermost edge. The peripheral flange portion of the overlay has an inboard surface that is near to the axially outermost edge or flange lip of the rim flange of the wheel while the radially outermost edge or flange lip of the peripheral flange portion of the overlay is circumferentially aligned within a predetermined tolerance variation of the radially outer periphery of the rim flange of the wheel, such that the peripheral flange portion of the overlay covers the flange lip of the rim flange of the wheel without wrapping over the edge of the wheel. This relationship gives a visible impression to the observer of the vehicle or wheel alone that the entire outboard surface of the overlay is actually the entire outboard surface of the

wheel. This impression is accomplished without wrapping the overlay's peripheral flange portion around the flange lip of the rim flange, as with some previous prior art.

One advantage of the present invention is that the overlay protects the extremities of the flange lip of the rim flange of the wheel from stone chips. The overlay is made of a chrome-plated plastic material that is more resistant to stone chipping than the protective coating applied to the outboard surface of the wheel. Also, such complete coverage would conceal corrosion that may arise from galvanic action between some types of stainless steel overlays and the wheel. Further, having the overlay cover the entire wheel outboard surface creates the visible impression that the overlay outboard surface is actually the entire outboard surface of the wheel and not a separate attachment.

The present invention also overcomes disadvantages of other prior art in which the overlay wraps around the flange lip of the rim flange. The present invention has the advantage of providing the protection described above, yet doing so while avoiding potential damage to the overlay or the rubber tire. As mentioned in the background of the invention, in the prior art the overlay must wrap around the rim flange into the tire bead seat area. Under certain driving or service conditions, the edge or flange lip of the overlay as well as the peripheral flange portion of the overlay may not be seated properly, and thus may present a sharp edge in the tire in the bead seat area of the wheel, potentially damaging the tire during the service life. The present invention avoids this risk because the flange lip of the peripheral flange portion of the overlay is maintained away from the tire bead seat area, yet still provides the pleasing aesthetic appearance described

previously without the potential aesthetic misconception concerning the actual wheel diameter of the wheel as discussed above.

Another advantage of the present invention is that the overlay is less susceptible to damage during tire installation and removal. During such tire servicing activity, some service equipment must locate on the radially outer periphery of the rim flange of the wheel. In so doing, such equipment will damage the periphery of the prior art overlay since the overlay extends over the flange lip of the radially outer periphery of the rim flange of the wheel. However, the overlay of the present invention is not subject to this damage since its radially outermost edge is maintained just clear of the equipment during servicing.

Yet another advantage of the present invention is that it will not damage the tire under severe radial tire loads during operation of the vehicle. Severe radial tire loads deflect the rim flange area of the wheel. In turn, the overlay's peripheral flange portion will also deflect. Again, the peripheral edge of some prior art overlays wrap around the flange lip of the rim flange of the wheel and are rolled into a groove near the tire bead seat area. Under severe radial tire loads and associated deflections, the overlay's peripheral edge may unseat and present its sharp edge to the side of the tire, potentially causing severe damage by tearing into the rubber tire. The overlay's peripheral flange portion of the present invention is maintained outboard of this sensitive tire bead seat area, and thus will not pose this risk.

Similarly, another advantage is that the present invention will not damage the tire under "run flat" conditions. Under such conditions, the sharp edge of an unseated

peripheral edge of the overlay in the tire bead seat area may tear into the flat tire, thus causing severe damage. Again, the overlay's peripheral flange of the present invention is maintained outboard of this sensitive area, and thus will not pose this risk.

The differences between Applicants' invention and the prior art references cited by the Examiner in the rejection under 35 U.S.C. §103 are quite clear. In the Eikhoff reference, the teachings of the preferred embodiment are completely contrary to the Applicants' teachings of not permitting the overlay to wrap around the flange lip of the rim flange.

Moreover, Todd's disclosure is unclear as to the relationship of the fascia overlap condition with the underlying wheel's structural features. Frankly, there is no disclosure whatsoever in the Todd patent when considering how the adhesive interrelates with the overlay and wheel surface or how the structure of the outer edge of the overlay related to the edge of the wheel. Also, since Todd teaches that the curled boundary of the fascia 32 helps to secure the overlay to the wheel at the windows and bolt holes it completely fails to disclose, other than an incidental comment, how the outer edges of the overlay and wheel cooperate to provide the impression that the overlay is the wheel. Further, Todd clearly teaches that no adhesive is needed.

Thus, Todd's incidental suggestion that the peripheral edge 34 of the fascia extends to the edge of the wheel raises more questions than it answers, and thus cannot form the basis of a rejection against Applicants' claims which, according to the requirements of 35 U.S.C. §112, define clear structural differences of an overlay having a

claimed relationship at its outer boundaries with the wheel's outer edge and wherein the overlay is adhesively directly attached to the outer surface of the wheel.

The Examiner proposes the teachings of Todd to obviate Applicants' structural claimed relationship so as to change the appearance of the wheel and overlay assembly as desired. The Examiner further contends that the structural relationship is but a mere design expedient in order to provide an aesthetic appearance. However, this suggestion in and of itself would still not make the claimed combination obvious because it is still contrary to Todd's teachings of not using an adhesive to fill the space between the cover and the wheel, and because of Todd's contrary teachings of using the material in a mold to adhere the fascia to the base polymer without adhesive.

Accordingly, the incidental disclosure of Todd certainly presents more questions than it answers and, absent hindsight reconstruction from Applicants' own teachings, the incidental disclosure is completely deficient with respect to how to accomplish Applicants' structural combination and therefore is not enabling.

Even if, as the Examiner suggests, the teachings of Todd or Eikhoff singularly or in combination were used in an attempt to obviate Applicants' invention, it is clear from these teachings that the suggested combination could not result in Applicants' invention and would in fact require extensive additional disclosure as well as structure in an attempt to acquire similar results.

In any event, even if, as the Examiner suggests, the teachings of Todd or Eikhoff are considered, one skilled in the art would have no basis for combining such teachings since neither of these references is directed to the problems solved by

Applicants' invention. Further, neither Todd or Eikhoff's teachings are directed to a wheel and overlay assembly wherein the relationship of the outermost edges of the overlay and wheel require a specific structural interrelationship to acquire the results as taught by Applicants' invention and the advantages associated therewith. Thus, it is only through Applicants' teachings and disclosure that one of ordinary skill in the art would appreciate the need for such claimed structural arrangement between the associated edges of the overlay and wheel to provide unique aesthetic configurations to a vehicle wheel. In view of this, a person of ordinary skill in the art would not seek to use the teachings of the references cited by the Examiner to produce the result that Applicants' invention as claimed teaches.

It is well settled patent law that the mere fact that a disclosure can somehow be combined with other references does not make that combination obvious unless the prior art contains some suggestion of the desirability for combining the prior art references. Here, the prior art contains absolutely no suggestion whatsoever for combining the references as set forth in the Examiner rejection to teach the invention as claimed according to Applicants' disclosure. Further, the prior art is completely devoid of any specific teaching concerning structure on how to accomplish the incidental disclosure regarding edge to edge structural relationship between an overlay and a wheel. It is, therefore, respectfully suggested that the Examiner is using hindsight reconstruction in an attempt to obviate Applicants' invention after having the benefit of reading Applicants' application. Absent recognition of the problem faced by the Applicants, the prior art cannot possibly suggest singularly or in combination a solution as novel as Applicants'

invention. Accordingly, Applicants' invention is an unobvious improvement over the prior art and not an obvious modification of any of the references cited by the Examiner. When viewed singularly or collectively, none of the prior art references teach a wheel and overlay assembly wherein the relationship of the outermost edges of the wheel and overlay require a specific structural interrelationship and an adhesive is used to fill the gap between the overlay and the wheel.

The undersigned agent respectfully submits that the independent claims as well as the dependent claims are clearly allowable over the disclosure and any teachings of Todd, Eikhoff or Buergon taken by themselves or in combination. Accordingly, Applicants' invention is an unobvious improvement over the prior art and not an obvious modification of any of the references cited by the Examiner. Withdrawal of the rejection of the claims under 35 U.S.C. §103(a) is, therefore, respectfully requested.

In view of the foregoing remarks, the undersigned agent respectfully submits that the pending independent and dependent claims are in proper form, define patentably over the prior art, and are clearly allowable. Accordingly, Applicants' invention is an unobvious improvement over the prior art and not an obvious modification of any of the references cited by the Examiner. With respect to the rejections concerning the dependent claims, it is to be noted that these claims are to be read in light of the independent claims from which they depend and, accordingly, in view of the limitations as now set forth in the amended independent claims, it is respectfully suggested that the dependent claims are now in condition for allowance. Applicants' agent respectfully requests that the Examiner's objection under 37 CFR §1.75(d)(1) and rejections under 35

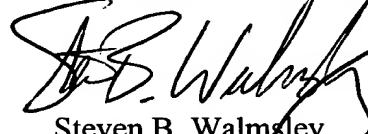
U.S.C. §§112, 102 and 103 be withdrawn and that a formal Notice of Allowance of the application be issued.

In accordance with 37 CFR §1.121, a clean copy of the claims as currently pending in the application, omitting all bracketed text and underlining, is included herewith as Exhibit A. Similarly, as indicated above, clean versions of the amended specification pages are attached as Exhibit B.

If the Examiner et al. has any questions with respect to any matter now of record, Applicants' agent may be reached at (248) 362-1210.

Respectfully submitted,

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Certificate under 37 CFR §1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on 8/8/01.

Date: 8/8/01


Steven B. Walmsley, Reg. No. 48021

EXHIBIT A

AI Pub 951
1. A wheel and overlay assembly, comprising:

a wheel having an outboard surface thereon, said wheel further having a disk portion and a rim portion circumscribing said disk portion, said rim portion having a rim flange circumscribing said rim portion, said rim flange terminating in a flange lip defining a radially outermost edge thereon; and

an overlay having an outboard surface thereon, said overlay being attached to said outboard surface of said wheel, said overlay further having a web portion, and a peripheral flange circumscribing said web portion and terminating in a peripheral lip, said peripheral lip having a radially outermost edge aligned within a predetermined margin with respect to said radially outermost edge of said flange lip of said wheel so that said peripheral lip of said overlay substantially covers said flange lip of said wheel but does not extend beyond said outermost edge of said flange lip of said wheel, so as to give a visible impression that said outboard surface of said overlay is actually said outboard surface of said wheel and not a separately attached component of said wheel and overlay assembly.

2. The wheel and overlay assembly of Claim 1, wherein said radially outermost edge of said peripheral lip of said overlay is aligned with said radially outermost edge of said flange lip of said wheel within a circumferential margin of about 1.2 to 1.5 millimeters having a bilateral tolerance of about 0.8 millimeters.

3. The wheel and overlay assembly of Claim 2, wherein said radially outermost edge of said peripheral lip of said overlay is aligned with said radially

outermost edge of said flange lip of said wheel further within a circumferential margin of 0 millimeters having a unilateral tolerance of about 1.6 millimeters.

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4. The wheel and overlay assembly of Claim 1, wherein said overlay is spaced away from said wheel by an adhesive/sealant bead means and is attached to said wheel with a selectively deposited adhesive.

5. The wheel and overlay assembly of Claim 1, wherein said overlay further comprises:

an inboard surface; and

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at least one offset integral with said inboard surface of said overlay, said at least one offset locating said overlay relative to said rim flange of said wheel.

6. The wheel and overlay assembly of Claim 4, wherein said adhesive is an adhesive means.

7. The wheel and overlay assembly of Claim 4, wherein said adhesive is a mechanical interlocking means.

8. The wheel and overlay assembly of Claim 1, wherein said overlay includes a heat-resistant metal-plated finish.

9. The wheel and overlay assembly of Claim 1, wherein said overlay includes a heat-resistant paint finish.

10. The wheel and overlay assembly of Claim 1, wherein said overlay includes a weatherable material with no finish applied thereto.

11. The wheel and overlay assembly of Claim 1, wherein said wheel is composed of a metal material.

13. The wheel and overlay assembly of Claim 1, wherein said peripheral flange and said rim flange combine to define industry standard dimensions that meet attachment requirements for industry standard wheel balance weights.

14. The wheel and overlay assembly of Claim 13, wherein said overlay peripheral flange is adapted to accommodate complete attachment of an industry standard balance weight thereto, without having to attach said industry standard balance weight to said wheel rim flange.

15. A wheel and overlay assembly, comprising:

a wheel having an outboard surface thereon, said wheel further having a disk portion and a rim portion circumscribing said disk portion, said rim portion having a rim flange circumscribing said rim portion, said rim flange terminating in a flange lip defining a radially outermost edge thereon, said radially outermost edge defining an outer diameter; and

an overlay having an outboard surface thereon, said overlay being attached to said outboard surface of said wheel, said overlay further having a web portion and a peripheral flange circumscribing said web portion and terminating in a peripheral lip, said peripheral lip having a radially outermost edge defining a diameter, said diameter of said overlay being substantially equal to but not greater than said outer diameter of said wheel, whereby said peripheral lip of said overlay substantially covers said flange lip of said wheel so as to give a visible impression that said outboard surface of said overlay is actually said outboard surface of said wheel and not a separately attached component of said wheel and overlay assembly.

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16. The wheel and overlay assembly as claimed in Claim 15, wherein said radially outermost edge diameter of said overlay is substantially equal to said radially outermost edge diameter of said wheel within a circumferential margin therebetween of about 1.2 to 1.5 millimeters having a bilateral tolerance of about 0.8 millimeters.

17. The wheel and overlay assembly as claimed in Claim 16, wherein said diameter of said overlay is substantially equal to said diameter of said wheel further within a circumferential margin therebetween of 0 millimeters having a unilateral tolerance of about 1.6 millimeters.

18. The wheel and overlay assembly of Claim 15, wherein said overlay is spaced away from said wheel by an adhesive/sealant bead means and attached to said wheel with a selectively deposited adhesive.

19. The wheel and overlay assembly of Claim 15, wherein said overlay further comprises:

an inboard surface; and

at least one offset integral with said inboard surface of said overlay, said at least one offset locating said overlay relative to said rim flange of said wheel.

20. The wheel and overlay assembly of Claim 18, wherein said adhesive is an adhesive means.

21. The wheel and overlay assembly of Claim 18, wherein said adhesive is a mechanical interlocking means.

22. The wheel and overlay assembly of Claim 15, wherein said overlay includes a heat-resistant metal-plated finish.

23. The wheel and overlay assembly of Claim 15, wherein said overlay includes a heat-resistant paint finish.

24. The wheel and overlay assembly of Claim 15, wherein said overlay includes a weatherable material with no finish applied thereto.

25. The wheel and overlay assembly of Claim 15, wherein said wheel is composed of a metal material.

27. The wheel and overlay assembly of Claim 15, wherein said peripheral flange and said rim flange combine to define industry standard dimensions that meet attachment requirements for industry standard wheel balance weights.

28. The wheel and overlay assembly of Claim 27, wherein said overlay peripheral flange is adapted to accommodate complete attachment of an industry standard balance weight thereto, without having to attach said industry standard balance weight to said wheel rim flange.

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EXHIBIT B

surface of the wheel including the flange lip of the rim flange. The overlay has an outboard surface with a web portion, and an integral peripheral flange or rim flange portion circumscribed about the web portion. Further, the peripheral flange or rim flange portion of the overlay also terminates in a flange lip as the radially outermost edge. The peripheral flange portion of the overlay has an inboard surface that is near to the axially outermost edge or flange lip of the rim flange of the wheel while the radially outermost edge or flange lip of the peripheral flange portion of the overlay is circumferentially aligned within a predetermined tolerance variation of the radially outer periphery of the rim flange of the wheel, such that the peripheral flange portion of the overlay covers the flange lip of the rim flange of the wheel without wrapping over the edge of the wheel. This relationship gives a visible impression to the observer of the vehicle or wheel alone that the entire outboard surface of the overlay is actually the entire outboard surface of the wheel. This impression is accomplished without wrapping the overlay's peripheral flange portion around the flange lip of the rim flange, as with some previous prior art. The present invention also overcomes the disadvantages of other prior art in which the overlay extends up to, but does not cover, the flange lip of the rim flange of the wheel.

A2 For example, one advantage of the present invention is that the overlay protects the extremities of the flange lip of the rim flange of the wheel from stone chips. The overlay is made of a chrome-plated plastic material that is more resistant to stone chipping than the protective coating applied to the outboard surface of the wheel. Also, such complete coverage would conceal corrosion that may arise from galvanic action between some types of stainless steel overlays and the wheel. Further, having the overlay cover the entire wheel outboard surface creates the visible impression that the overlay

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blends with a flange lip 38X that is integral with the rim flange 37 in a generally radially outward direction and has a radially outermost edge 38Y and an axial protrusion 382 underlying the flange lip 58X of the overlay. Accordingly, the radially outermost lip or peripheral edge 58a of the overlay extends as far as, but no further than, the radially outermost edge 38Y of the wheel flange lip 38X so as to provide a visible impression that the vehicle wheel cladding assembly incorporates a flange lip 58X, in this case on the overlay instead of the wheel. As in other embodiments, the decorative layer gives the visual impression that it completely covers the outboard surface 31 of the wheel 30 to the outer periphery thereof.

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However, unlike the embodiment of FIG. 7, here the peripheral flange portion 57 of the overlay 50 is formed relative to the wheel rim flange 37 to present the flange lip 58X on the overlay in such a way as to resemble the traditional wheel rim flange lip. Consequently, a standard balance weight (not shown) may be attached entirely to the peripheral flange portion 57 and flange lip 58X of the overlay 50, and not attached to the traditional rim flange 37 and rim flange 58 of the wheel illustrated in Figs. 1-6. The radially outermost lip or peripheral edge 58a of the flange lip 58 is relieved at its diametrical outermost edge, as shown, to accommodate and retain the locking tab found on most balance weights. Additionally, the overlay 50 net locates to the wheel 30 via the sealant gasket or bead 42. In the alternative, as shown in FIG. 8A, the flange lip 58X of the overlay 50 can net locate directly against the flange lip 38X of the wheel 30, using the sealant gasket 42 shown in Fig. 8 as well as an adhesive 40 to take up the tolerance variation therebetween and permanently mount the overlay 50 to the wheel 30.

Finally, FIG. 9 illustrates a further variation on FIGS. 8 and 8A, wherein the flange lip 58X of the overlay 50 is formed relative to the wheel rim flange 37 in such a way as to resemble the traditional flange lip 38 of the rim flange 37 of a wheel. Consequently, a standard balance weight (not shown) may be attached only to the

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peripheral flange portion 57 and flange lip 58X of the overlay 50, and not attached to the rim flange 37 and/or flange lip 38 of the wheel. Here, the inboard surface of the flange lip 58X of the overlay 50 locates against the flange lip 38 of the wheel 30, wherein the sealant bead 42 seals the overlay and wheel while the adhesive takes up dimensional variation between the overlay 50 and wheel 30 and adheres the overlay 50 to the wheel 30. Note that the adhesive 40 is disposed radially inward and outward of the sealant bead 42. Accordingly, the adhesive aids in securing the outer periphery of the overlay 50 to the outer periphery of the wheel 30 and thereby aids in distributing stress loads therebetween. The portion of the adhesive 40 that is radially outward of the sealant bead 42 can be a different type of adhesive than the portion that is radially inward of the sealant bead 42.

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The unique configuration of FIG. 9 has several specific advantages. First, a standard wheel balance weight can more easily be assembled to the wheel assembly because the flange lip 58X is relatively narrower than the width of the flange lip 58X and flange lip 38 combined. Second, since the axially shorter flange lip 38 of this Euro style wheel is less prominent, the axially longer flange lip 58X of the overlay provides the more prominent feature of prior art wheel designs, with a cost savings and lower overall weight due to the shorter metal flange lip being replaced with plastic material. The result is an enhancement of the overall appearance of the wheel assembly since the overlay 50 would further resemble the wheel 30 itself rather than a separately attached component.

As set forth above and according to the present invention, the wheel assembly incorporates the overlay that is permanently secured to the outboard surface of the wheel, wherein the overlay extends radially outward to cover a major portion of the flange lip of the rim flange of a wheel but does not extend beyond the radially outermost edge of the rim flange of the wheel, such that the overlay appears to be the actual wheel

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diameter and not a separate attachment. As a result, any decorative finish such as chrome plating or heat resistant paint on the overlay appears to be formed on the wheel itself. This is particularly advantageous with hard to plate wheel materials, such as cast aluminum. Accordingly, optimization of the wheel's design and styling can be achieved independent of plating or paint limitations. Other limitations are overcome by the present invention and are discussed below.

The present invention is an optimum solution to the two basic problems of the prior art. First, the present invention provides an aesthetically pleasing overlay that completely or at least substantially covers the outboard surface of the wheel without detrimental aesthetic perceptions due to the overlay wrapping around the rim flange or stopping short of the flange lip of the rim flange of the wheel. Secondly, the overlay does not compromise the integrity of the tire by intruding into the tire area of the wheel.

Whereas the first group of prior art wheels provides an overlay that covers most of the wheel outboard surface, the present invention goes further to provide complete or substantially complete coverage. By completely covering the wheel outboard surface, several advantages are realized: 1) the overlay provides protection against stone chipping of the rim flange and flange lip of the wheel; 2) coverage to the extreme periphery of the rim conceals underlying corrosion that arises from galvanic action between some types of overlays and wheels; 3) coverage to the extreme periphery of the rim gives the impression that the assembly consists of just the wheel itself and not two separately manufactured components, and 4) further gives the impression of a larger, more robust wheel.

Furthermore, the second group of prior art wheels involves risks associated with wrapping the peripheral lip of the overlay around the rim flange of the wheel. Wrapping the overlay around the rim flange of the wheel potentially subjects the overlay to damage resulting from tire service equipment, and potentially presents the sharp edge of